

REMARKS

In view of the following remarks, the Examiner is requested to allow Claims 1-7, 9 and 10, as well as newly presented Claims 11-14, the only claims pending and under examination in this application.

Formal Matters

Claim 1 has been amended to further include a microarray processing component and data processing component. Support for the microarray processing component may be found on page 15, lines 24-31 of the specification. Support for the data processing component may be found on page 12, lines 28-29, page 15, lines 16-17, and page 7, lines 28-29.

New Claims 11-13 find support on 15, lines 24-31.

New Claim 14 finds support on page 16, lines 1-2.

As the above amendments introduce no new matter, their entry by the Examiner is respectfully requested.

Claim Rejections 35 U S C § 103

Claims 1-6 and 9 are rejected under 35 U S C 103 (a) as allegedly obvious over Lockhart (Nature Biotechnology 14: 1675-1680 (1996)) in view of Taylor (U.S. Publication No. 2002/0052882) in view of Nova et al. (U.S. Patent No. 6,017,496).

In making this rejection, the Examiner asserts that Lockhart's oligonucleotide array combined with Taylor's virtual microarray and Nova's memory renders the claims obvious.

In order to meet its burden in establishing a rejection under 35 U.S.C. §103, the Office must first demonstrate that a prior art reference, or references when combined, teach or suggest all claim elements. See, e.g., *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1740 (2007); *Pharmastem Therapeutics v. Viacell et al.*, 491 F.3d 1342, 1360

(Fed. Cir. 2007); MPEP § 2143(A)(1). In addition to demonstrating that all elements were known in the prior art, the Office must also articulate a reason for combining the elements. See, e.g., *KSR* at 1741; *Omegaflex, Inc. v. Parker-Hannifin Corp.*, 243 Fed. Appx. 592, 595-596 (Fed. Cir. 2007) citing *KSR*. Further, the Supreme Court in *KSR* also stated that that “a court *must* ask whether the improvement is more than the predictable use of prior art elements according to their established functions.” *KSR* at 1740; emphasis added. As such, in addition to showing that all elements of a claim were known in the prior art and that one of skill had a reason to combine them, the Office must also provide evidence that the combination would be a predicted success.

Applicants submit that the combination of Lockhart, Taylor and Nova does not render the claimed invention obvious because the combination fails to teach or suggest each and every element of the claims – e.g., a microarray processing component that scans, extracts or normalizes a subset of the features that have not yet been analyzed.

The rejected claims, as amended, require both a microarray processing component and a data processing component. In the claimed invention, the microarray processing component (e.g., scanner) is separate from the data processing component (e.g., computer). The microarray processing component “is configured to process only a subset of the features of the microarray at a processing step, wherein the processing step is selected from: a scanning step, a feature extraction step and a feature normalization step.” The data processing component analyzes the data of the subset of the features that have been processed by the microarray processing component. As such, in the claimed invention, a subset of the features of a microarray is first processed (i.e., scanned, extracted or normalized) and then analyzed.

The Examiner cites Lockhart for its asserted teaching with regard to microarrays and microarray processing. However, Lockhart is silent on processing only a subset of the features of the microarray. To remedy this deficiency, the Examiner turns to Taylor.

However, Applicants submit that Taylor fails to teach or suggest the claimed invention as amended for at least two reasons.

First, nowhere does Taylor describe a microarray processing component that either scans, extracts or normalizes only a subset of the features of the microarray as claimed.

Second, Taylor does not teach processing only a subset of the features followed by analysis of only the processed subset of the features. Rather, in Taylor, a subset of features is selected from multiple different fully processed microarrays to form the "virtual microarray". In other words, in Taylor, all of the features of all of the arrays are processed, and only after this processing is a subset selected by a user. This is precisely the opposite of what is claimed.

Specifically, Taylor teaches that prior to the selection of a subset of the features to be included in a virtual microarray, the entire data related to the features of multiple microarrays are analyzed such that the entire data are available for the user to select or run a search (see below).

The assignment of physical spots to virtual spots in virtual microarray 206 may be selected by the user, either by specifying a search criteria that operates on data representing the physical spots, or by manual selection. For embodiments in which the user specifies a search criteria, the search results may form virtual microarray 206, which allows a user to combine physical spots from multiple physical microarrays 106 that share a common data characteristic, regardless of the geographic or temporal location of the physical spot.

Taylor, ¶ 0018.

Applicants wish to direct the Examiner's attention to the search dialog box of Taylor's FIG. 5. As shown below, a user "has constructed a search looking for all spots having cDNA from chromosome 3, tissue sample from the brain, and a spot confidence exceeding fifty percent" (¶ 164). Subsequently, spots matching the search criteria are displayed to the user. As such, it is clear that Taylor analyzes the entire feature data for the chromosome locations, tissue locations, spot confidences, etc. prior to selecting a subset of the features to generate a virtual microarray.

The image shows a 'Find' dialog box with the following fields and controls:

- Find of whose:** A dropdown menu set to 'Spots or Web' with two radio buttons below it.
- Chromosome:** A dropdown menu set to 'equals' followed by a text box containing '3'.
- Tissue:** A dropdown menu set to 'equals' followed by a text box containing 'Brain'.
- Spot Confidence:** A dropdown menu set to 'greater than' followed by a text box containing '50'.
- Buttons:** 'Less', 'More', and 'FIND' buttons at the bottom.

Therefore, Taylor fails to make up the deficiency in Lockhart as it does not teach or suggest a microarray processing component "configured to process only a subset of the features of the microarray at a processing step, wherein the processing step is selected from: a scanning step, a feature extraction step and a feature normalization step" as claimed.

As Nova is cited merely for its teaching of memory components associated with a microarray, it fails to remedy this deficiency in Lockhart and Taylor.

Accordingly, the combination of Lockhart, Taylor and Nova fails to teach or suggest a microarray processing component as is claimed. Withdrawal of the rejection is respectfully requested.

Claims 1, 7 and 10 are rejected under 35 U.S.C. 103(a) as allegedly obvious over Lockhart in view of Taylor and in view of Nova, and further in view of Ramdas.¹ This rejection is respectfully traversed as applied to the amended claims.

As discussed above in detail, the Applicants submit that the combination of Lockhart, Taylor and Nova fails to teach or suggest a microarray processing component "configured to process only a subset of the features of the microarray at a processing step, wherein the processing step is selected from: a scanning step, a feature extraction step and a feature normalization step" as claimed.

¹ It appears that "in view of Taylor and" is mistakenly omitted in making this rejection.

Ramdas is cited solely for the alleged teaching of automated analysis of microarrays using scanners and computer controlled visualization systems. However, the asserted teachings of Ramdas fail to remedy the deficiencies in Lockhart, Taylor and Nova recited above, because Ramdas' scanners and computer controlled visualization systems do not process only a subset of the features of the microarray as claimed.

Therefore, Applicants submit that the combined teachings of Lockhart, Taylor, Nova and Ramdas fail to establish a *prima facie* case of obviousness. Withdrawal of this rejection is thus respectfully requested.

CONCLUSION

In view of the amendments and remarks above, the Applicants respectfully submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Bret Field at (650) 833-7770.

The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to Deposit Account No. 50-1078, order number 10020348-1.

Respectfully submitted,

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